

09/744675

(FILE 'HCAPLUS' ENTERED AT 13:45:41 ON 04 DEC 2002)

L1 38 SEA FILE=HCAPLUS ABB=ON PLU=ON SEX##(5A)(SORT? OR  
SELECT? OR PRESELECT? OR PREDETERM? OR PRE DETERM?) AND  
SPERM?

L2 22 SEA FILE=HCAPLUS ABB=ON PLU=ON L1 AND (MAMMAL? OR  
EQUINE OR HORSE OR BOVINE OR COW OR CATTLE OR SHEEP)

L2 ANSWER 1 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2002:754688 HCAPLUS

DOCUMENT NUMBER: 137:275326

TITLE: **Sex-specific selection of  
sperm** from transgenic animals using  
ploidy-regulated reporter genes incorporated  
into sex chromosomes

INVENTOR(S): Forsberg, Erik J.; Eilertsen, Kenneth J.;  
Bishop, Michael D.; Zheng, Ying; Leno, Gregory  
H.

PATENT ASSIGNEE(S): Infigen, Inc., USA

SOURCE: PCT Int. Appl., 67 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002077637	A1	20021003	WO 2002-US8933	20020322
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

PRIORITY APPLN. INFO.: US 2001-278155P P 20010322

AB The present invention relates to methods and materials for pre-selecting the sex of mammalian offspring. In particular, the materials and methods described herein permit the enrichment of X- or Y-chromosome-bearing sperm in semen by introducing a reporter gene into a sex chromosome under control of regulatory sequences that provide for expression of the transgene in a haploid-specific manner. Alternatively, a gene for a cytotoxic protein under the control of Y chromosome-specific promoter can be used to selectively kill Y chromosome-bearing sperm. Use a cytotoxic variant of the hamster BiP protein as a cytotoxin is described in detail.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L2 ANSWER 2 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2002:368638 HCAPLUS

DOCUMENT NUMBER: 136:381347

09/744675

TITLE: Transgenic manipulation of **mammalian spermatogenesis** to effect **sex selection**  
INVENTOR(S): Rothstein, Steve; Wildeman, Alan  
PATENT ASSIGNEE(S): University of Guelph, Can.  
SOURCE: PCT Int. Appl., 56 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002038748	A2	20020516	WO 2001-CA1605	20011109
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002020392	A5	20020521	AU 2002-20392	20011109
PRIORITY APPLN. INFO.:			US 1999-164333P	P 19991109
			US 2000-708734	A2 20001109
			WO 2001-CA1605	W 20011109

AB A method of **sex selection** in non-human animals is disclosed which comprises transgenic manipulation of the male to modify, destroy or identify gametes having one of either the X or Y chromosome. A chimeric construct comprising a post-meiotic regulatory region in operative assocn. with a **sex selection** gene is targeted to one of either a Y or X chromosome in the genome of a male animal. The post-meiotic regulatory region may be transition protein 1 promoter. The selection sequence may be a direct or indirect mediator, or a detectable marker. An example of a direct mediator is the Rnase, Barnase. An example of an indirect mediator is the herpes simplex virus thymidine kinase gene, which forms a toxic metabolite in the presence of gancyclovir. Alternatively, a transcriptional activator protein may be linked to the post-meiotic regulatory element, and the direct or indirect mediator may be linked to a promoter having a binding site specific for the transcriptional activator. According to the invention a non-human animal is formed which is capable of producing either exclusively male or exclusively female offspring, or a non-human animal is obtained from which X or Y contg. gametes may be easily sorted and isolated. The invention is useful in applications which would benefit from the ability to obtain animals of a desired sex.

L2 ANSWER 3 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:510188 HCAPLUS

DOCUMENT NUMBER: 135:267398

TITLE: Effects of follicular fluid or progesterone on in vitro maturation of **equine** oocytes

Searcher : Shears 308-4994

09/744675

before intracytoplasmic **sperm**  
injection with non-**sorted** and  
**sex-sorted spermatozoa**

AUTHOR(S): Schmid, R. L.; Kato, H.; Herickhoff, L. A.;  
Schenk, J. L.; McCue, P. M.; Chung, Y. G.;  
Squires, E. L.

CORPORATE SOURCE: Animal Reproduction and Biotechnology  
Laboratory, Fort Collins, CO, 80523, USA

SOURCE: Journal of Reproduction and Fertility,  
Supplement (2001), 56(Equine Reproduction VII),  
519-525  
CODEN: JRFSAR; ISSN: 0449-3087

PUBLISHER: Journals of Reproduction and Fertility Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB In Expt 1, compact cumulus oocyte complexes (COCs) were matured in:  
control medium (Hepes-buffered TCM-199 with 10% estrous **cow**  
serum (OCS) + estradiol, LH and FSH); Hepes-buffered TCM-199 with  
20% follicular fluid; or control medium contg. 250 ng progesterone  
ml-1. Mature oocytes were collected by transvaginal aspiration as a  
pos. control for the in vitro maturation (IVM) treatments. Oocytes  
were fertilized by ICSI and cultured in Menezo's B2+5% fetal calf  
serum (FCS). There were no significant differences among IVM  
treatments. In Expt 2, oocytes with expanded COCs were matured in  
Hepes-buffered TCM-199 with 10% OCS, estradiol, LH and FSH with  
different concns. of progesterone (0, 50, 250 and 1250 ng ml-1).  
Oocytes were fertilized by ICSI and cultured in a chem. defined  
medium. The medium contg. 1250 ng progesterone ml-1 resulted in  
fewer oocytes with a visible first polar body after maturation ( $P < 0.05$ ),  
whereas the media contg. 0 and 50 ng progesterone ml-1  
resulted in higher development rates to seven- to eight-cell embryos  
( $P < 0.05$ ), compared with media contg. 250 or 1250 ng progesterone  
ml-1. Six of the resulting morulae were transferred to recipient  
mares. In addn., oocytes ( $n = 32$ ) from Expt 2 were injected with  
**sex-sorted spermatozoa**, obtained by  
sepg. X- and Y-bearing **spermatozoa** with a Cytomation MoFlo  
flow cytometer/cell sorter. Two embryos resulting from ICSI with  
X-bearing **spermatozoa** were transferred to the oviduct of a  
recipient mare. No pregnancies were established after transfer of  
embryos in these expts.

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L2 ANSWER 4 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:489177 HCAPLUS

DOCUMENT NUMBER: 135:87981

TITLE: Method and compositions for controlling  
offspring's sex ratio by targeting transgenes  
onto the sex chromosomes

INVENTOR(S): Liu, Chengyu; Costantini, Franklin; Wang, Jin

PATENT ASSIGNEE(S): USA

SOURCE: PCT Int. Appl., 20 pp.  
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

Searcher : Shears 308-4994

09/744675

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001047353	A1	20010705	WO 2000-US35275	20001227
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1253823	A1	20021106	EP 2000-989488	20001227
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
PRIORITY APPLN. INFO.:			US 1999-173096P	P 19991227
			WO 2000-US35275	W 20001227
AB The present invention provides methods and compn. useful making transgenic animals whose offspring's sex ratio can be altered through the expression of said transgene integrated onto one of the two sex chromosomes. The method can entirely eliminate the prodn. of either X or Y <b>sperm</b> in the testis, and the transgenic animals can pass this trait from one generation to another. The method involves: (a) selecting or creating a transgene (here, HSV-tk gene) whose expression can interfere with <b>sperm</b> 's ability to undergo fertilization, and whose gene products do not diffuse freely among inter-connected <b>spermatids</b> ; (b) placing the transgene under the regulatory control of post-meiotic <b>spermatogenesis</b> -specific promoter; and (c) using the transgene to generate transgenic animals in the way that the transgene is inserted onto one of the two sex chromosomes. The method can be modified by replacing the post-meiotic <b>spermatogenesis</b> -specific promoters with promoters that express during embryogenesis, and by replacing the toxin transgene that disrupts the <b>sperm</b> 's function to a transgene that affects embryonic development or viability.				
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT				
L2 ANSWER 5 OF 22 HCAPLUS COPYRIGHT 2002 ACS ACCESSION NUMBER: 2001:391796 HCAPLUS TITLE: Method of cryopreserving selected <b>sperm</b> cells INVENTOR(S): Schenk, John PATENT ASSIGNEE(S): Xy, Inc., USA SOURCE: PCT Int. Appl. CODEN: PIXXD2 DOCUMENT TYPE: Patent LANGUAGE: English FAMILY ACC. NUM. COUNT: 1 PATENT INFORMATION:				

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001037655	A1	20010531	WO 2000-US30155	20001122

Searcher : Shears 308-4994

09/744675

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,  
CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK,  
LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ,  
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ,  
UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU,  
TJ, TM  
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH,  
CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE,  
TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD,  
TG

BR 2000016049 A 20020813 BR 2000-16049 20001122  
EP 1257168 A1 20021120 EP 2000-980267 20001122

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,  
PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

PRIORITY APPLN. INFO.: US 1999-167423P P 19991124  
US 2000-478299 A 20000105  
WO 2000-US30155 W 20001122

AB The present invention provides a method of cryopreserving  
**sperm** that have been selected for a specific characteristic.  
In a preferred embodiment, the method is employed to freeze  
**sex-selected sperm**. Although the  
cryopreservation method of the invention can be used to freeze  
**sperm** selected by any number of selection methods, selection  
using flow cytometry is preferred. The present invention also  
provides a frozen **sperm** sample that has been selected for  
a particular characteristic, such as sex-type. In preferred  
embodiments, the frozen **sperm** sample includes  
**mammalian sperm**, such as, for example, human,  
**bovine, equine, porcine, ovine, elk, or bison**  
**sperm**. The frozen selected **sperm** sample can be  
used in a variety of applications. In particular, the sample can be  
thawed and used for fertilization. Accordingly, the invention also  
includes a method of using the frozen selected **sperm**  
sample for artificial insemination or in vitro fertilization.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L2 ANSWER 6 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:338278 HCAPLUS

DOCUMENT NUMBER: 134:338733

TITLE: Controlling sex ratios in animal breeding by  
**sex-chromosome selective**  
control of **sperm** viability

INVENTOR(S): Mileham, Alan; Affara, Nabeel; Plastow, Graham

PATENT ASSIGNEE(S): PIG Improvement Co. (Uk) Ltd., UK

SOURCE: PCT Int. Appl., 25 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001032008	A1	20010510	WO 2000-GB4223	20001103
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,				

Searcher : Shears 308-4994

09/744675

CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK,  
LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ,  
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ,  
UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU,  
TJ, TM  
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH,  
CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE,  
TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD,  
TG

BR 2000015313 A 20020702 BR 2000-15313 20001103  
PRIORITY APPLN. INFO.: GB 1999-26161 A 19991104  
WO 2000-GB4223 W 20001103

AB Methods for the control of sex ratio in non-human **mammals**  
are provided. These methods involve the prodn. of transgenic  
animals which have particular transgenes integrated into their  
genomes. Animals produced using such methods are also provided, as  
are the transgene constructs. The method can be used to selectively  
inhibit function of either X or Y chromosome by placing a transgene  
that will inhibit **sperm** function under control of a  
promoter that only functions in post-meiotic **spermatids**.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L2 ANSWER 7 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2000:378144 HCAPLUS

DOCUMENT NUMBER: 133:2213

TITLE: System for improving yield of sexed embryos in  
**mammals**

INVENTOR(S): Seidel, George; Herickhoff, Lisa; Schenk, John

PATENT ASSIGNEE(S): Xy, Inc., USA

SOURCE: U.S., 16 pp., Cont.-in-part of U.S. Ser. No.  
1,394.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6071689	A	20000606	US 1998-15454	19980129
US 6149867	A	20001121	US 1997-1394	19971231
CA 2316080	AA	19990708	CA 1998-2316080	19981231
WO 9933956	A1	19990708	WO 1998-US27909	19981231
W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL			
RW:	GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
AU 9920239	A1	19990719	AU 1999-20239	19981231
BR 9814568	A	20001010	BR 1998-14568	19981231
EP 1044262	A1	20001018	EP 1998-965046	19981231
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,			

Searcher : Shears 308-4994

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PT, IE, FI  
GB 2350619 A1 20001206 GB 2000-16132 19981231  
DE 19882943 T 20010201 DE 1998-19882943 19981231  
ES 2161656 A1 20011201 ES 2000-20005005219981231  
ES 2161656 B1 20020801  
JP 2002500006 T2 20020108 JP 2000-526614 19981231  
US 6372422 B1 20020416 US 1999-448643 19991124  
NO 2000003424 A 20000830 NO 2000-3424 20000630  
PRIORITY APPLN. INFO.: US 1997-1394 A2 19971231  
US 1998-15454 A 19980129  
WO 1998-US27909 W 19981231

AB Improved insemination systems particularly adapted to use for  
**sex-selected sperm sorting**  
include systems which achieve superovulation and then multiple  
embryo prodn. with sexed embryos. These systems combine with other  
techniques, including techniques for enhanced sheath fluid and other  
strategies which minimize stress on the **sperm** cells, and,  
potentially, a 2.9 % sodium citrate sheath soln. for **bovine**  
species and a Hepes **bovine** gamete media for **equine**  
species. Improved collection systems and techniques for the process  
are described so that com. application of **sperms** samples  
as well as the resulting animals may be achieved.

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L2 ANSWER 8 OF 22 HCAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 2000:96048 HCAPLUS  
TITLE: **Equine** system for non-surgical  
artificial insemination  
INVENTOR(S): Squires, Edward L.; Mccue, Patrick M.; Seidel,  
George E.  
PATENT ASSIGNEE(S): Xy, Inc., USA; Colorado State University Through  
Colorado State University Research Foundat  
SOURCE: PCT Int. Appl.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000006193	A1	20000210	WO 1999-US17165	19990729
W:	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
CA 2338194	AA	20000210	CA 1999-2338194	19990729
AU 9952408	A1	20000221	AU 1999-52408	19990729
BR 9912539	A	20010502	BR 1999-12539	19990729
EP 1100534	A1	20010523	EP 1999-937611	19990729

Searcher : Shears 308-4994

09/744675

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,  
PT, IE, SI, LT, LV, FI, RO

JP 2002521043 T2 20020716 JP 2000-562047 19990729  
PRIORITY APPLN. INFO.: US 1998-94720P P 19980730  
US 1998-113143P P 19981218  
WO 1999-US17165 W 19990729

AB Non-surgical artificial insemination is achieved for sexed and unsexed **equines** in a commercially practical manner and with dosages of insemination **sperm** which were not previously thought to be practical for commercial implementation. Practical and field usable techniques for insemination are presented as well as techniques which offer success ratios at level comparable to the existing routine, high dosage unsexed artificial insemination techniques in **equines**. Improved insemination and sorting systems particularly adapted to use for **sex-selected sperm** are disclosed.

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L2 ANSWER 9 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1999:591304 HCAPLUS

TITLE: The beltsville **sperm** sexing  
technology: high-speed **sperm** sorting  
gives improved **sperm** output for in  
vitro fertilization and AI

AUTHOR(S): Johnson, Lawrence A.; Welch, Glenn R.; Rens, Wim

CORPORATE SOURCE: ARS, Germplasm and Gamete Physiology Laboratory,  
USDA, Beltsville, MD, 20705, USA

SOURCE: J. Anim. Sci. (Savoy, Ill.) (1999), 77(Suppl.  
2), 213-220

CODEN: JANSAG; ISSN: 0021-8812

PUBLISHER: American Society of Animal Science

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The Beltsville **sperm** sexing technol. is currently the only effective means of altering the sex ratio of offspring in livestock. The method is based on the flow-cytometric sepn. of X- and Y-chromosome-bearing **sperm** based on X/Y DNA content difference. It is an effective means of producing progeny of **predetd. sex** in **cattle**, swine, **sheep**, and lab. animals. The method involves treating **sperm** with a DNA-binding fluorochrome, Hoechst 33342, and flow-cytometrically sorting them into sep. X and Y populations that can subsequently be used for surgical intratubal or intrauterine insemination, deep-uterine insemination, regular artificial insemination in some cases, in vitro fertilization to produce sexed embryos for transfer, and intracytoplasmic **sperm** injection of ova. Skewed sex ratios of 85 to 95% of one sex or the other have been repeatably achieved in most species. The method has been used worldwide to produce several hundred morphol. normal animal offspring of the predicted sex. It has also been validated in the lab. using DNA reanal. of the sorted **sperm** populations and by fluorescence in situ hybridization and PCR of individual **sperm**. We developed a new orienting nozzle that we have fitted to both conventional and high-speed cell sorters that have been modified for **sperm** sorting. Recently we completed the adaptation of the new orienting nozzle to a Cytomation MoFlo



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high-speed cell sorter modified for **sperm**. This adaptation of the nozzle has increased the overall prodn. rate of sorted X and Y **sperm** from about .35 million/h to 5 or 6 million **sperm**/h (each population). Calves have been born from **cows** artificially inseminated using conventional technique and sexed **sperm**. In addn., numerous litters of pigs have been born after transfer of embryos produced from X or Y sorted **sperm**.

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 10 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1999:464063 HCAPLUS

DOCUMENT NUMBER: 131:85162

TITLE: Sex-specific insemination of **mammals** with low number of **sperm** cells and improved flow cytometers for isolating desired cells

INVENTOR(S): Seidel, George E.; Herickhoff, Lisa; Schenk, John

PATENT ASSIGNEE(S): Xy, Inc., USA; Colorado State University

SOURCE: PCT Int. Appl., 73 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9933956	A1	19990708	WO 1998-US27909	19981231
W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL			
RW:	GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
US 6149867	A	20001121	US 1997-1394	19971231
US 6071689	A	20000606	US 1998-15454	19980129
CA 2316080	AA	19990708	CA 1998-2316080	19981231
AU 9920239	A1	19990719	AU 1999-20239	19981231
BR 9814568	A	20001010	BR 1998-14568	19981231
EP 1044262	A1	20001018	EP 1998-965046	19981231
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI			
GB 2350619	A1	20001206	GB 2000-16132	19981231
DE 19882943	T	20010201	DE 1998-19882943	19981231
JP 2002500006	T2	20020108	JP 2000-526614	19981231
NO 2000003424	A	20000830	NO 2000-3424	20000630

PRIORITY APPLN. INFO.: US 1997-1394 A2 19971231  
US 1998-15454 A2 19980129  
WO 1998-US27909 W 19981231

AB Artificial Insemination is achieved for sexed **mammalian** offspring in a com. practical manner and with dosages of insemination **sperm** which were not previously thought to be

practical for com. implementation. Improved insemination systems particularly adapted to use for **sex-selected sperm sorting** include systems which achieve superovulation and then multiple embryo prodn. with sexed embryos. These systems combine with other techniques, including techniques for enhanced sheath fluid and other strategies which minimize stress on the **sperm** cells, and potentially, a 2.9 percent sodium citrate sheath soln. for **bovine** species and a hepes **bovine** gamete media for **equine** species. Improved collection systems and techniques for the process are described so that com. application of **sperm** samples as well as the resulting animals may now be achieved in the field. Semen from bulls was incubated in medium contg. Hoechst 33342 for 1 h at 34.degree.. **Sperm** cells were **sorted** by **sex** chromosomes on the basis of epifluorescence using a MoFlo flow cytometer/cell sorter operating at 50 psi and using 2.9% Na citrate as sheath fluid. X-chromosome-bearing **sperm** were collected into Eppendorf tubes contg. Cornell Universal Extender with 20% egg yolk. Synchronized Angus heifers were inseminated 6-26 h after obsd. standing estrus. In the sexed group, 18 of 19 fetused were female; 20 of 30 were female in the control groups.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 11 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1999:328630 HCAPLUS

TITLE: **Mammalian** Y chromosome evolution and the male-specific functions of Y chromosome-borne genes

AUTHOR(S): Delbridge, Margaret L.; Graves, Jennifer A. Marshall

CORPORATE SOURCE: Department of Biochemistry and Genetics, La Trobe University, Bundoora, 3083, Australia

SOURCE: Rev. Reprod. (1999), 4(2), 101-109  
CODEN: REREFD; ISSN: 1359-6004

PUBLISHER: Journals of Reproduction and Fertility Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB All **mammals** have an XY chromosomal sex detg. system, in which a small Y chromosome triggers male development, and contains genes required for **spermatogenesis**. The X and Y chromosomes were originally homologous, but diverged during evolution as the Y chromosome was degraded progressively. Comparisons among the sex chromosomes of different **mammal** groups indicate that the X and Y chromosomes received addns. of material from other chromosomes. Genes on the Y chromosome originated from the ancient X-Y pair, or from these addns., or were copies of genes on one of the autosomes. Only genes with important male-specific functions, such as **sex** detn. and **spermatogenesis**, are **selected** for and retained on the differential region of the Y chromosome. The **mammalian** sex detg. gene, SRY, controls the testis detn. pathway, which includes at least one related gene. Several candidate **spermatogenesis** genes have been identified, but so far the only one that is conserved on the Y chromosome of all therian **mammals** is RBM (RNA-binding motif gene, Y chromosome).

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REFERENCE COUNT: 63 THERE ARE 63 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L2 ANSWER 12 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1999:273371 HCAPLUS

TITLE: Gender preselection in **cattle** with  
intracytoplasmically injected, flow  
cytometrically sorted **sperm** heads

AUTHOR(S): Hamano, Koh-ichi; Li, Xihe; Qian, Xiao-qiao;  
Funauichi, Katsutoshi; Furudate, Makoto; Minato,  
Yoshiaki

CORPORATE SOURCE: Maebashi Institute of Animal Science, Livestock  
Improvement Association of Japan, Inc., Gunma,  
371-0121, Japan

SOURCE: Biol. Reprod. (1999), 60(5), 1194-1197  
CODEN: BIREBV; ISSN: 0006-3363

PUBLISHER: Society for the Study of Reproduction

DOCUMENT TYPE: Journal

LANGUAGE: English

AB We investigated the development to the blastocyst and subsequent  
live-offspring stages of in vitro-matured **bovine** oocytes  
intracytoplasmically injected with flow cytometrically sorted bull  
**sperm** heads. Bull **sperm** heads, prepd. by  
ultrasound sonication, were distinguished and sorted on the basis of  
their relative DNA contents using a flow cytometer/cell sorter  
modified for sorting **sperm**. By fluorescence in situ  
hybridization, the proportion of **sperm** confirmed as having  
Y specific DNA in the fraction sorted for the Y **sperm** was  
82%. Injection with single sorted **sperm** heads of in  
vitro-matured oocytes (cultured for 24 h) resulted in 46.6% cleavage  
and 6.9% blastocyst development rates. Embryo transfer of 48  
blastocysts (Days 7-8) to recipients (one per recipient) resulted in  
20.8% pregnancy and 20.8% normal live offspring prodn. rates. The  
birth of 8 male and 2 female calves represents an 80% **sex**  
**preselection** accuracy rate.

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L2 ANSWER 13 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1998:489221 HCAPLUS

DOCUMENT NUMBER: 129:213692

TITLE: Improving the resolution of cryopreserved X- and  
Y-**sperm** during DNA flow cytometric  
analysis with the addition of Percoll to quench  
the fluorescence of dead **sperm**

AUTHOR(S): Stap, Jan; Hoebe, Ron A.; Merton, Johan S.;  
Haring, Rene M.; Bakker, Piet J. M.; Aten, Jacob  
A.

CORPORATE SOURCE: Academic Medical Center, University of  
Amsterdam, 1100 DE, Neth.

SOURCE: Journal of Animal Science (1998), 76(7),  
1896-1902

CODEN: JANSAG; ISSN: 0021-8812

PUBLISHER: American Society of Animal Science

DOCUMENT TYPE: Journal

LANGUAGE: English

Searcher : Shears 308-4994

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AB The most effective method to control the sex of offspring is by sepg. X-from Y-bearing **sperm** on the basis of their DNA content. **Sperm** can be stained with Hoechst 33342 and efficiently **sexed** using a flow cytometer/cell **sorter**. However, applying this established assay to cryopreserved **bovine sperm** presents specific problems, such as broad fluorescence distributions without a distinct X- and Y-peak. Our results indicate that these problems are mainly caused by the large amt. of dead **sperm** normally present in a thawed **sperm** population. We showed that Percoll quenches the fluorescence of chromatin stained with Hoechst 33342 and that this quenching can be applied to reduce the fluorescence of dead **sperm**. We used this finding to exclude the dead **sperm** from the sorting window and thus obtained narrower fluorescence distributions and sorted X- and Y-bearing **sperm** populations contg. up to 85 to 92% viable **sperm**. The viability of the sorted **sperm** was monitored by propidium iodide exclusion.

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 14 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1997:234362 HCAPLUS

DOCUMENT NUMBER: 126:222611

TITLE: Method for identifying sex specific and species specific molecules, molecules identified using the method, and uses of the molecules

INVENTOR(S): Blecher, Stan R.

PATENT ASSIGNEE(S): University of Guelph, Can.; Blecher, Stan R.

SOURCE: PCT Int. Appl., 35 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9707399	A1	19970227	WO 1996-CA534	19960809
W:	AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM			
CA 2183012	AA	19970212	CA 1996-2183012	19960809
AU 9666526	A1	19970312	AU 1996-66526	19960809
AU 722913	B2	20000817		
EP 876612	A1	19981111	EP 1996-926286	19960809
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI			
BR 9610235	A	19990727	BR 1996-10235	19960809
JP 11511252	T2	19990928	JP 1996-508769	19960809
PRIORITY APPLN. INFO.:			US 1995-2193P	P 19950811
			WO 1996-CA534	W 19960809

AB A method for identifying non-sex specific and sex specific mols.

Searcher : Shears 308-4994

assocd. with animal cell membranes is described. The method involves prepg. a cell membrane fraction from adult, fetal, or embryonic animal cells; treating the cell membrane fraction with one or more substances which bind to non-sex specific mols. in the cell membrane fraction to form conjugates between the non-sex specific mols. and the substances; sepg. the material in the cell membrane fraction which does not bind to the substances to obtain a subfraction contg. sex specific mols.; optionally, removing the substances in the conjugates to obtain a subfraction contg. non-sex specific mols.; and, isolating the sex specific mols. and optionally non-sex specific mols. in the subfractions. Sex specific and non-sex specific mols. and methods of using the sex specific and non-sex specific mols. for sexing are also described.

L2 ANSWER 15 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1994:319841 HCAPLUS

DOCUMENT NUMBER: 120:319841

TITLE: Application of biotechnology in beef  
**cattle** breeding

AUTHOR(S): Utsumi, Kyoze

CORPORATE SOURCE: Fac. Agric., Kyoto Univ., Kyoto, 606, Japan

SOURCE: Chikusan no Kenkyu (1994), 48(4), 507-11

CODEN: CKNKAJ; ISSN: 0009-3874

DOCUMENT TYPE: Journal; General Review

LANGUAGE: Japanese

AB A review, with 4 refs., on the embryo transplantation (ET) with embryo manipulation, and application of the methods developed in mol. biol. Gene polymorphism is employed for screening improved subjects. ET is used for acceleration of bleeding and stock formation. Monovular twins, **sperm sorted** by **sex**, chimera, and anal. of cytoplasmic inheritance are used for bleeding. The conditioning of donor and host animals for ET, and excess ovulation induction are described for ET. Quality evaluation and selection of embryos, ex vivo culture of early embryo before implantation, early pregnancy factor, freeze preservation of ovary and embryo, prodn. of monovular twins and division of embryo, and sexual selection are discussed for embryo manipulation. This is the last part of a series on the subject.

L2 ANSWER 16 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1992:545658 HCAPLUS

DOCUMENT NUMBER: 117:145658

TITLE: Meiosis-specific protein **selectively**  
associated with **sex** chromosomes of rat  
pachytene **spermatocytes**

AUTHOR(S): Smith, Avril; Benavente, Ricardo

CORPORATE SOURCE: Biocent., Univ. Wuerzburg, Wuerzburg, Germany

SOURCE: Proceedings of the National Academy of Sciences  
of the United States of America (1992), 89(15),  
6938-42

CODEN: PNASA6; ISSN: 0027-8424

DOCUMENT TYPE: Journal

LANGUAGE: English

AB During the first meiotic prophase of **mammalian**  
**spermatogenesis**, the sex chromosomes X and Y show a  
characteristic allocyclic behavior with respect to the autosomes.  
This is particularly evident during the pachytene stage when sex  
chromosomes form the so-called sex vesicle. This structure is

characterized by the condensed state of chromatin, transcriptional inactivity, and the limited extension of chromosome pairing, which is usually restricted to a short segment of sex chromosome axial elements. The mol. basis and functional significance of sex vesicle formation during **mammalian spermatogenesis** remain obscure. Here the authors report on the identification of a meiosis-specific vesicle protein called XY40. Immunocytochem. localization on rat testis cryosections with a XY40-specific monoclonal antibody revealed that the labeling is confined to the axial elements of sex chromosomes. Biochem. characterization showed that protein XY40 (40 kDa; pI 5.7-5.8) can be extd. from rat pachytene **spermatocytes** and recovered in particles of 9.5 S with a native mol. mass of .apprxeq.152 kDa. Protein XY40 may be involved in the allocyclic behavior of sex chromosomes during male meiotic prophase.

L2 ANSWER 17 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1991:469835 HCAPLUS

DOCUMENT NUMBER: 115:69835

TITLE: Antibodies to sex-associated membrane (SAM) proteins, their use for increasing the probability that offspring will be of a desired **sex, sperm sorting** by flow cytometry, and identification of SAM proteins

INVENTOR(S): Spaulding, Glenn F.

PATENT ASSIGNEE(S): Cytogam, Inc., USA

SOURCE: U.S., 17 pp. Cont. of U.S. Ser. No. 282,922, abandoned.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
US 5021244	A	19910604	US 1989-351642	19890512
US 5346990	A	19940913	US 1991-667974	19910312
US 5439362	A	19950808	US 1994-280637	19940725
US 5660997	A	19970826	US 1995-486593	19950607
PRIORITY APPLN. INFO.:			US 1987-35986	19870408
			US 1988-282922	19881206
			US 1989-351642	19890512
			US 1991-667974	19910312
			US 1994-280637	19940725

AB Antibodies are provided which bind to X or Y SAM proteins; the antibodies may be monoclonal. Also disclosed are the SAM proteins, **mammalian sperm** subpopulation enriched in X- or Y-**sperm**, methods for increasing the probability that offspring will be male or female, methods for increasing or decreasing the probability that an offspring will carry an X- or Y-chromosome-linked trait, and artificial insemination kits. Sorting of **sperm** by flow cytometry is described, as is isolation of sex-specific **sperm** plasma membrane vesicles. The SAM proteins were identified using electrophoretic methods. Mol. wt. and pI values for 15 X-SAM proteins and 10 Y-SAM proteins are tabulated. Prodn. of monoclonal antibodies to the SAM proteins

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is described.

L2 ANSWER 18 OF 22 HCAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 1984:468925 HCAPLUS  
DOCUMENT NUMBER: 101:68925  
TITLE: Treating collected **mammal** semen and  
separating **sperm** into X and Y  
components  
INVENTOR(S): Adair, Edwin  
PATENT ASSIGNEE(S): Genetic Engineering, Inc., USA  
SOURCE: PCT Int. Appl., 14 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 8401265	A1	19840412	WO 1982-US1478	19821005
W: JP				
RW: CH, DE, FR, GB				
EP 120854	A1	19841010	EP 1983-900092	19821005
R: CH, DE, FR, GB, LI				
PRIORITY APPLN. INFO.:			WO 1982-US1478	19821005

AB Procedures are described for preserving isolated **mammalian** semen and for sepg. viable X and Y chromosome-bearing **sperm** from the semen by selective staining with a fluorescent dye (e.g., quinacrine, quinacrine-HCl, quinacrine mustard) and flow cytometry for use in **sex-selective** artificial insemination. The procedures are esp. useful for animal breeding. For example, .apprx.1.0 mL of human saliva was added to .apprx.2-3.5 mL of isolated **mammal** semen to prevent coagulation and kept at .apprx.37.degree.. For staining the **sperm** of some **mammals**, 0.05 mL DMSO was added to .apprx.2-3.5 mL of semen to facilitate dye penetration into the cell membrane. Then **sperm** were treated with .apprx.0.5-1.0% of quinacrine-HCl soln. for .apprx.15 min. The stained **sperm** were fed through a fluorescence cell sorter, and the X and Y chromosome-bearing cells were sepd. based on their fluorescence differences. The effectiveness of this sepn. is nearly 100% and at least >90%. Collected semen can be stored frozen for future use.

L2 ANSWER 19 OF 22 HCAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 1975:576251 HCAPLUS  
DOCUMENT NUMBER: 83:176251  
TITLE: Reproduction of cellular bodies  
INVENTOR(S): Augspurger, Lynn L.  
PATENT ASSIGNEE(S): USA  
SOURCE: U.S., 13 pp. Continuation-in-part of U.S.  
3,854,470.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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Searcher : Shears 308-4994

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US 3906929	A	19750923	US 1974-532253	19741212
US 3854470	A	19741217	US 1973-418604	19731123
US 3866598	A	19750218	US 1974-444022	19740220
AU 7473995	A1	19760408	AU 1974-73995	19741004
IN 140864	A	19770101	IN 1974-CA2313	19741019
BR 7409179	A	19760511	BR 1974-9179	19741101
JP 50157180	A2	19751218	JP 1974-129493	19741109
GB 1486468	A	19770921	GB 1974-48625	19741111
BE 822358	A1	19750314	BE 1974-150649	19741119
DE 2454674	A1	19750528	DE 1974-2454674	19741119
NL 7415307	A	19750527	NL 1974-15307	19741122
IN 148179	A	19801122	IN 1978-CA981	19780908
JP 60246751	A2	19851206	JP 1985-55636	19850319
PRIORITY APPLN. INFO.:			US 1973-418604	19731123
			US 1974-444022	19740220
			IN 1976-CA2004	19760904

AB Improved techniques for increasing the reproductive potential of genetically superior **cattle**, as well as other **mammals**, were developed, including tissue culture of embryos, freezing techniques for oocytes, methods of **predetg** . the **sex** of embryos before transplantation, transplantation techniques, and methods of clonal prodn. of embryos so that several embryos of like genetic material may be obtained from the same donor. In the cloning technique, sterilized **spermatozoa** and a pseudofertilization soln. were used to induce a reaction in an oocyte, and the oocyte was caused to become diploid by use of the polar body originally transferred or by nucleus transfer. The improved sex detn. techniques include use of ion-exchange resins to sep. male and female (by chromosome type) **spermatozoa** by their known surface charge differences.

L2 ANSWER 20 OF 22 HCAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1974:488994 HCAPLUS  
 DOCUMENT NUMBER: 81:88994  
 TITLE: **Predetermination of sex in sperm**  
 INVENTOR(S): Lang, John L.  
 SOURCE: Ger. Offen., 86 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
DE 2256346	A1	19740522	DE 1972-2256346	19721117

AB A liq. medium contg. live **sperm**, consisting of pos. and neg. charged particles, was treated at a suitable pH with an elec. charged medium so that the **sperm** with 1 sex characteristic were bound, and being immobilized were unable to fertilize an ovum. The liq. medium, such as for **cattle sperm**, has an optimal pH below 7.05; the elec. charged medium may be a synthetic polyelectrolyte such as a sulfonated styrene polymer, an org. or inorg. elec. charged colloid or semicolloid, an elec. charged hydrocarbon dispersion, or a naturally occurring latex.



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L2 ANSWER 21 OF 22 HCAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 1974:445990 HCAPLUS  
DOCUMENT NUMBER: 81:45990  
TITLE: Compositions used in influencing the sex of  
**mammalian** fetuses  
INVENTOR(S): Lang, John L.  
SOURCE: Fr. Addn., 19 pp.  
CODEN: FAXXA3  
DOCUMENT TYPE: Patent  
LANGUAGE: French  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
AB	FR 2175293	A6	19731019	FR 1972-8047	19720308
	Media contg. animal <b>sperm</b> cells are exposed to charged polymers whose electrostatic charges <b>selectively</b> attract <b>sperm</b> corresponding to one <b>sex</b> , thus making them incapable of fertilization. Treatment of rabbit <b>sperm</b> with sodium polyacrylate [9003-04-7] prior to insemination resulted in a marked increase of the female to male ratio in offspring. The procedure for selective inactivation of <b>sperm</b> also includes sensitization by pretreatment with a polyelectrolyte, and sedimentation is accelerated by application of a magnetic field. <b>Sperm</b> are stabilized for cold storage by addn. of egg yolk.				

L2 ANSWER 22 OF 22 HCAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 1967:44818 HCAPLUS  
DOCUMENT NUMBER: 66:44818  
TITLE: Method of separating X and Y **spermatozoa**  
. Methods for controlling the sex of offspring  
of **mammals** and their nuture  
PATENT ASSIGNEE(S): SWB Research Corp.  
SOURCE: Neth. Appl., 26 pp.  
CODEN: NAXXAN  
DOCUMENT TYPE: Patent  
LANGUAGE: Dutch  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
	NL 6604149		19660930		
PRIORITY APPLN. INFO.:			US		19650329
AB	The sex of offspring is detd. by the chromosomes of <b>spermatozoa</b> or <b>spermacells</b> which fertilize the ovum. It is known that some <b>spermatozoa</b> contain X, or female chromosomes, while others contain Y, or male chromosomes. When a <b>spermatozoa</b> which contains X chromosomes unites with an ovum which contains X chromosomes, the result is a female offspring. When a <b>spermatozoa</b> contg. Y chromosomes unites with an ovum contg. Y chromosomes, the result is a male offspring. The <b>sperm</b> of a male <b>mammal</b> contains both X and Y <b>spermatozoa</b> . The sepn. of these two kinds of <b>spermatozoa</b> makes it possible to choose or to det. the sex of the offspring. Sedimentation at low temps. in a medium with crit. maintained properties results in the sepn. of X and Y				

Searcher : Shears 308-4994

**spermatozoa.** Sperm contg. X and Y  
**spermatozoa** is mixed with a medium consisting of 4 parts of egg yolk and one part 4% glycine. The culture medium is absorbed in the **spermatozoa**, slowly cooled, and after cooling, sepd. in fractions by sedimentation. The sepd. X and Y **spermatozoa** together with the culture media, can be used in artificial insemination and **sex** of offspring **predetd.**

FILE 'MEDLINE, BIOSIS, EMBASE, WPIDS, CONFSCI, SCISEARCH, JICST-EPLUS, JAPIO, VETU, VETB, CABA, AGRICOLA' ENTERED AT 13:52:09 ON 04 DEC 2002)

L4 303 SEA (SEX##(5A)(SORT? OR SELECT? OR PRESELECT? OR PREDETERM? OR PRE DETERM?))(5A) SPERM?  
 L5 84 SEA L4(S)(MAMMAL? OR EQUINE OR HORSE OR BOVINE OR COW OR CATTLE OR SHEEP)  
 L6 41 DUP REM L5 (43 DUPLICATES REMOVED)

L6 ANSWER 1 OF 41 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.  
 ACCESSION NUMBER: 2002:293926 BIOSIS  
 DOCUMENT NUMBER: PREV200200293926  
 TITLE: Multiple sexed embryo production system for mammals.  
 AUTHOR(S): Seidel, George; Herickhoff, Lisa; Schenk, John  
 ASSIGNEE: Colorado State University through its agent Colorado State University Research Foundation and XY, Inc., Fort Collins, CO, USA  
 PATENT INFORMATION: US 6372422 April 16, 2002  
 SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (Apr. 16, 2002) Vol. 1257, No. 3, pp. No Pagination.  
<http://www.uspto.gov/web/menu/patdata.html>. e-file.  
 ISSN: 0098-1133.

DOCUMENT TYPE: Patent  
 LANGUAGE: English

AB Improved insemination systems particularly adapted to use for **sex-selected sperm sorting** include systems which achieve superovulation and then multiple embryo production with sexed embryos. These systems combine with other techniques, including techniques for enhanced sheath fluid and other strategies which minimize stress on the sperm cells, and, potentially, a 2.9 percent sodium citrate sheath solution for **bovine** species and a hepes **bovine** gamete media for **equine** species. Improved collection systems and techniques for the process are described so that commercial application of sperms samples as well as the resulting animals may be achieved.

L6 ANSWER 2 OF 41 WPIDS (C) 2002 THOMSON DERWENT  
 ACCESSION NUMBER: 2002-583385 [62] WPIDS  
 CROSS REFERENCE: 2002-537403 [57]  
 DOC. NO. NON-CPI: N2002-462706  
 DOC. NO. CPI: C2002-164810  
 TITLE: Differentiating X-chromosome bearing cells from Y-chromosome bearing cells comprises staining mammalian sperm cells with Hoechst 33342 stain and differentiating stained DNA by fluorescence .  
 DERWENT CLASS: B04 C06 D16 P31  
 INVENTOR(S): LU, K; SEIDEL, G E; SUH, T K  
 PATENT ASSIGNEE(S): (COLS) UNIV COLORADO STATE; (XYXY-N) XY INC  
 COUNTRY COUNT: 99

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PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2002043574	A2	20020606	(200262)*	EN	51
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW					
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZM ZW					
AU 2002037689	A	20020611	(200264)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2002043574	A2	WO 2001-US45023	20011129
AU 2002037689	A	AU 2002-37689	20011129

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2002037689	A Based on	WO 200243574

PRIORITY APPLN. INFO: US 2000-253787P 20001129; US 2000-253785P  
20001129

AN 2002-583385 [62] WPIDS

CR 2002-537403 [57]

AB WO 200243574 A UPAB: 20021031

NOVELTY - Staining (M1) mammalian sperm cells, involves incubating sperm cells present in semen of a male mammal, with more than 40 mu M of Hoechst 33342 stain (I) at 30 deg. C-40 deg. C for 50-200 minutes, and staining sperm cell DNA with sufficient uniformity to allow X-chromosome bearing cells to be differentiated from Y-chromosome bearing cells based upon the magnitude of fluorescence at a rate greater than 85%.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a flow cytometer system (FCS) for isolating desired sperm cells, comprising sperm cells obtained by thawing previously frozen semen, where the sperm cells are processed by subjecting to M1, a sperm cell source (3) that supplies the sperm cells to a flow cytometer, a sheath fluid source (6) that creates a sheath fluid (5) environment within the flow cytometer in which the sperm cells are entrained, a nozzle (4) through which sperm cells pass while entrained in the sheath fluid environment, an oscillator that acts upon the sheath fluid as it passes through the nozzle, a sperm cell sensor (12) responsive to sperm cells, a separation discrimination system (13) that acts to separate the sperm cells having a desired characteristic, and a container into which sperm cells having desired characteristic are collected.

USE - M1 is for staining sperm cells collected from male **mammals** e.g. primates, humans, swine, ovids, bovids, equids, canids, felids and dolphins. The stained cells obtained by the above said method is useful for generating **mammalian** embryos, by fertilizing oocytes with stained sperm cells, where increasing the

concentration of (I) and decreasing the incubation time increases the percentage of **mammalian** embryos produced. M1 and FCS are useful for producing a **mammal** having a **predetermined** sex, by determining the **sex** characteristic of **sperm** cells contained within frozen-thawed semen by M1, separating the sperm cells according to the determination of their sex in a collection element, establishing an artificial insemination sample from the sperm cells isolated in the collection element, inserting the artificial insemination sample into a female **mammal** of the same species from which the semen was collected, fertilizing at least one egg within the female **mammal**, and producing an offspring **mammal** of the desired sex. The number of isolated sperm cells in the artificial insemination sample is limited to 10%-50% (150000 to 1 million, or 1-3 or 40-100 million) of the number of sperm cells relative to a typical unseparated artificial insemination sample. The method further involves creating superovulation in the female **mammal** to create at least two eggs, by using an ovulatory pharmaceutical to cause multiple eggs to be produced, and where the ovulatory pharmaceutical is injected in half day increments between 2-18 days of the estrous cycle (all claimed).

ADVANTAGE - The method is suitable to allow assessment of a wide range of genetics. Rather than being limited to the genetics of individuals from species of mammals having proximity to a spermatozoa separating or sorting facility, genetics representing a wide variety of individuals from numerous species can be transported as frozen semen to distant spermatozoa separation facilities for subsequent separation into X-chromosome bearing and Y-chromosome bearing populations. The method provides sufficient resolution of the X-chromosome bearing spermatozoa from the Y-chromosome bearing spermatozoa, so that separation or sorting can be achieved without substantial cross contamination. High purity insemination samples can be provided.

Dwg.0/3

L6 ANSWER 3 OF 41 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.  
 ACCESSION NUMBER: 2002:166290 BIOSIS  
 DOCUMENT NUMBER: PREV200200166290  
 TITLE: Effect of Hoechst 33342 staining and laser illumination on the viability of **sex-sorted bovine sperm**.  
 AUTHOR(S): Garner, D. L. (1); Suh, T. K. (1)  
 CORPORATE SOURCE: (1) XY, Inc., ARBL Building, Foothills Research Campus, Fort Collins, CO USA  
 SOURCE: Theriogenology, (January 2, 2002) Vol. 57, No. 1, pp. 746. print.  
 Meeting Info.: Proceedings of the Annual Conference of the International Embryo Transfer Society Foz do Iguassu, Parana, Brazil January 12-15, 2001  
 ISSN: 0093-691X.  
 DOCUMENT TYPE: Conference  
 LANGUAGE: English

L6 ANSWER 4 OF 41 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.  
 ACCESSION NUMBER: 2002:325199 BIOSIS  
 DOCUMENT NUMBER: PREV200200325199  
 TITLE: Practice and recent advance of mammalian gender pre-selection.

09/744675

AUTHOR(S): Ma Jun (1); Pei Yi-jing (1); Ji Wei-zhi (1)  
CORPORATE SOURCE: (1) Kunming Institute of Zoology, Chinese Academy of  
Sciences, Kunming, 650223. wji@mail.kiz.ac.cn China  
SOURCE: Zoological Research, (2002) Vol. 23, No. 2, pp.  
161-165. print.  
ISSN: 0254-5853.  
DOCUMENT TYPE: Article  
LANGUAGE: Chinese

AB **Mammalian** gender **preselection** is to achieve  
desired offspring **sex** ratio by means of **sperm**  
sexing or embryo sexing. Due to it's promising application in the  
field of human health and stock breeding, it's a longing desire for  
the human being. In this article, we reviewed the history of the  
development of gender preselection methods and the latest advances  
in this field. For each method, it's commented on the theoretical  
foundation, the advantage and disadvantage, their potential in the  
practical usage and the future development.

L6 ANSWER 5 OF 41 WPIDS (C) 2002 THOMSON DERWENT  
ACCESSION NUMBER: 2001-374538 [39] WPIDS  
DOC. NO. NON-CPI: N2001-274052  
DOC. NO. CPI: C2001-114416  
TITLE: Cryopreservation of sperm comprises isolating and  
extending cooled sperm.  
DERWENT CLASS: B04 B05 C03 D16 D22 P32  
INVENTOR(S): SCHENIK, J; SCHENK, J  
PATENT ASSIGNEE(S): (XYXY-N) XY INC  
COUNTRY COUNT: 94  
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2001037655	A1	20010531	(200139)*	EN	60
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW					
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW					
AU 2001017552	A	20010604	(200153)		
BR 2000016049	A	20020813	(200262)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2001037655	A1	WO 2000-US30155	20001122
AU 2001017552	A	AU 2001-17552	20001122
BR 2000016049	A	BR 2000-16049	20001122
		WO 2000-US30155	20001122

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2001017552	A	WO 200137655
BR 2000016049	A	WO 200137655

Searcher : Shears 308-4994

09/744675

PRIORITY APPLN. INFO: US 2000-478299 20000105; US 1999-167423P  
19991124

AN 2001-374538 [39] WPIDS

AB WO 200137655 A UPAB: 20021007

NOVELTY - A method for the cryopreservation of sperm comprises:

- (a) obtaining a selected sperm sample;
- (b) cooling said selected sperm sample;
- (c) isolating sperm from the selected sperm sample to produce isolated sperm;
- (d) adding final extender to said isolated sperm to produce a suspension of sperm; and
- (e) freezing said suspension of sperm.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a frozen selected sperm sample prepared by the method described above.

USE - The method is used to cryopreserve sperm.

Dwg.0/0

L6 ANSWER 6 OF 41 MEDLINE DUPLICATE 1  
ACCESSION NUMBER: 2002021280 MEDLINE  
DOCUMENT NUMBER: 21343312 PubMed ID: 11451346  
TITLE: **Sex-Sorting mammalian sperm:** concept to application in animals.  
AUTHOR: Garner D L  
CORPORATE SOURCE: XY Inc, Fort Collins, Colorado, USA..  
dgarner@xyinc.com  
SOURCE: JOURNAL OF ANDROLOGY, (2001 Jul-Aug) 22 (4) 519-26.  
Ref: 53  
Journal code: 8106453. ISSN: 0196-3635.  
PUB. COUNTRY: United States  
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
General Review; (REVIEW)  
(REVIEW LITERATURE)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals  
ENTRY MONTH: 200112  
ENTRY DATE: Entered STN: 20020121  
Last Updated on STN: 20020121  
Entered Medline: 20011207

AB Sperm sexing can be used to produce sexed offspring with 85%-95% accuracy (Amann, 1999; Johnson and Seidel, 1999; Seidel et al 1999a). On September 1, 2000, the sale of sexed bovine sperm commented in the United Kingdom. It will be interesting to see to what degree sexed sperm penetrate the semen market. This verified sexed product sets the stage for commercialization around the world in major animal producing countries. This commercialization of sexed sperm occurred nearly 20 years after technology for accurately determining the proportion of X and Y sperm in semen was first developed at Lawrence Livermore National Laboratory. It came about due to advances in both the hardware and the software components of computer science, biophysics, cell biology and applied reproductive physiology plus efforts of innovative scientists. Many individuals have contributed in making semen sexing in animals a commercial reality since the research team of Bart Gledhill, Dan Pinkel, Duane Garner, Susan Lake, and Larry Johnson began following up on the first flow cytometric studies on human sperm by Friedrich Otto, Wolfgang Gohde, and Marvin Meistrich. There was also major input

from personnel at USDA Beltsville Agricultural Research Center as well as scientists at Cambridge University, Atlantic Breeders Cooperative, Colorado State University and XY Inc. These include Chuck Allen, Rupert Amann, David Cran, Patrick Doyle, Mike Evans, Lisa Herickhoff, Mervyn Jacobson, Kehuan Lu, Chris Polge, Wim Rens, John Schenk, George Seidel, Glenn Welch, and many others.

L6 ANSWER 7 OF 41 MEDLINE  
 ACCESSION NUMBER: 2001697649 MEDLINE  
 DOCUMENT NUMBER: 21609730 PubMed ID: 11744272  
 TITLE: Low dose insemination of mares using non-sorted and sex-sorted sperm.  
 AUTHOR: Lindsey A C; Bruemmer J E; Squires E L  
 CORPORATE SOURCE: Animal Reproduction and Biotechnology Laboratory, ARBL Building, Foothills Campus, Colorado State University, Fort Collins, CO 80523, USA.  
 SOURCE: ANIMAL REPRODUCTION SCIENCE, (2001 Dec 3) 68 (3-4) 279-89. Ref: 30  
 Journal code: 7807205. ISSN: 0378-4320.  
 PUB. COUNTRY: Netherlands  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 General Review; (REVIEW)  
 (REVIEW, TUTORIAL)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 200202  
 ENTRY DATE: Entered STN: 20011218  
 Last Updated on STN: 20020214  
 Entered Medline: 20020213

AB Mares are generally inseminated with 500 million progressively motile fresh sperm and approximately 1 billion total sperms that have been cooled or frozen. Development of techniques for low dose insemination would allow one to increase the number of mares that could be bred, utilize stallions with poor semen quality, extend the use of frozen semen, breed mares with sexed semen and perhaps reduce the incidence of post-breeding endometritis. Three low dose insemination techniques that have been reported include: surgical oviductal insemination, deep uterine insemination and hysteroscopic insemination. Insemination techniques: McCue et al. [J. Reprod. Fert. 56 (Suppl.) (2000) 499] reported a 21% pregnancy rate for mares inseminated with 50,000 sperms into the fimbria of the oviduct. Two methods have been reported for deep uterine insemination. In the study of Buchanan et al. [Theriogenology 53 (2000) 1333], a flexible catheter was inserted into the uterine horn ipsilateral to the corpus luteum. The position of the catheter was verified by ultrasound. Insemination of 25 million or 5 million spermatozoa resulted in pregnancy rates of 53 and 35%, respectively. Rigby et al. [Proceedings of 3rd International Symposium on Stallion Reproduction (2001) 49] reported a pregnancy rate of 50% with deep uterine insemination. In their experiment, the flexible catheter was guided into position by rectal manipulation. More studies have reported the results of using hysteroscopic insemination. With this technique, a low number of spermatozoa are placed into or on the uterotubal junction. Manning et al. [Proc. Ann. Mtg. Soc. Theriogenol. (1998) 84] reported a 22% pregnancy rate when 1 million spermatozoa were inserted into the oviduct via the uterotubal junction. Vazquez et al. [Proc. Ann. Mtg. Soc. Theriogenol. (1998) 82] reported a 33% pregnancy rate when 3.8 million spermatozoa were

placed on the uterotubal junction. Recently, Morris et al. [J. Reprod. Fert. 188 (2000) 95] utilized the hysteroscopic insemination technique to deposit various numbers of spermatozoa on the uterotubal junction. They reported pregnancy rates of 29, 64, 75 and 60% when 0.5, 1, 5 and 10 million spermatozoa, respectively, were placed on the uterotubal junction. Insemination of **sex-sorted spermatozoa**: One of the major reasons for low dose insemination is insemination of X- or Y-chromosome-bearing sperm. Through the use of flow cytometry, spermatozoa can be accurately separated into X- or Y-bearing chromosomes. Unfortunately, only 15 million sperms can be sorted per hour. At that rate, it would take several days to sort an insemination dose containing 800 million to 1 billion spermatozoa. Thus, low dose insemination is essential for utilization of sexed sperm. Lindsey [Hysteroscopic insemination with low numbers of fresh and cryopreserved flow-sorted stallion spermatozoa, M.S. Thesis, Colorado State University, Fort Collins, CO, USA, 2000] utilized either deep uterine insemination or hysteroscopic insemination to compare pregnancy rates of mares inseminated with sorted, fresh stallion sperm to those inseminated with non-sorted, fresh stallion sperm. Hysteroscopic insemination resulted in more pregnancies than ultrasound-guided deep uterine insemination. Pregnancy rate was similar for mares bred with either non-sorted or **sex-sorted spermatozoa**. In a subsequent study, Lindsey et al. [Proceedings of 5th International Symposium on Equine Embryo Transfer (2000) 13] determined if insemination of flow-sorted spermatozoa adversely affected pregnancy rates and whether freezing **sex-sorted spermatozoa** would result in pregnancies. Mares were assigned to one of four groups: group 1 was inseminated with 5 million non-sorted sperms using hysteroscopic insemination; group 2 was inseminated with 5 million **sex-sorted sperms** using hysteroscopic insemination; group 3 was inseminated with non-sorted, frozen-thawed sperm; and group 4 was inseminated with **sex-sorted frozen sperm**. Pregnancy rates were similar for mares inseminated with non-sorted fresh sperm, **sex-sorted fresh sperm** and non-sorted frozen sperm (40, 37.5 and 37.5%, respectively). Pregnancy rates were reduced dramatically for those inseminated with **sex-sorted, frozen-thawed sperm** (2 out of 15, 13%). These studies demonstrated that hysteroscopic insemination is a practical and useful technique for obtaining pregnancies with low numbers of fresh spermatozoa or low numbers of frozen-thawed spermatozoa. Further studies are needed to determine if this technique can be used to obtain pregnancies from stallions with poor semen quality. In addition, further studies are needed to develop techniques of freezing **sex-sorted spermatozoa**.

L6 ANSWER 8 OF 41 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.  
 ACCESSION NUMBER: 2001:78897 BIOSIS  
 DOCUMENT NUMBER: PREV200100078897  
 TITLE: System for improving yield of sexed embryos in mammals.  
 AUTHOR(S): Seidel, George (1); Herickhoff, Lisa; Schenk, John  
 CORPORATE SOURCE: (1) LaPorte, CO USA  
 ASSIGNEE: XY, Inc., Fort Collins, CO, USA  
 PATENT INFORMATION: US 6071689 June 06, 2000



09/744675

SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (June 6, 2000) Vol. 1235, No. 1, pp. No Pagination. e-file.  
ISSN: 0098-1133.

DOCUMENT TYPE: Patent  
LANGUAGE: English

AB Improved insemination systems particularly adapted to use for **sex-selected sperm sorting** include systems which achieve superovulation and then multiple embryo production with sexed embryos. These systems combine with other techniques, including techniques for enhanced sheath fluid and other strategies which minimize stress on the sperm cells, and, potentially, a 2.9 percent sodium citrate sheath solution for **bovine** species and a hepes **bovine** gamete media for **equine** species. Improved collection systems and techniques for the process are described so that commercial application of sperms samples as well as the resulting animals may be achieved.

L6 ANSWER 9 OF 41 WPIDS (C) 2002 THOMSON DERWENT

ACCESSION NUMBER: 2000-182914 [16] WPIDS

CROSS REFERENCE: 1999-493811 [41]; 2002-098005 [13]; 2002-681828 [73]

DOC. NO. CPI: C2000-057407

TITLE: Production of **equine mammals**, by artificial insemination with **equine sperm** cells which may be **sex-selected** and producing **equine** offspring.

DERWENT CLASS: B04 C07 D16 P14 P32

INVENTOR(S): MCCUE, P M; SEIDEL, G E; SQUIRES, E L

PATENT ASSIGNEE(S): (COLS) UNIV COLORADO STATE; (XYXY-N) XY INC; (COLS) UNIV COLORADO STATE RES FOUND

COUNTRY COUNT: 87

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2000006193	A1	20000210	(200016)*	EN	62
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC					
MW NL OA PT SD SE SL SZ UG ZW					
W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES					
FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK					
LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG					
SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW					
AU 9952408	A	20000221	(200029)		
BR 9912539	A	20010502	(200129)		
EP 1100534	A1	20010523	(200130)	EN	
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK					
NL PT RO SE SI					
HU 2001003126	A2	20011228	(200216)		
ZA 2001000512	A	20020327	(200230)		119
MX 2001000968	A1	20010601	(200235)		
JP 2002521043	W	20020716	(200261)		83

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
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Searcher : Shears 308-4994

09/744675

WO 2000006193 A1	WO 1999-US17165	19990729
AU 9952408 A	AU 1999-52408	19990729
BR 9912539 A	BR 1999-12539	19990729
	WO 1999-US17165	19990729
EP 1100534 A1	EP 1999-937611	19990729
	WO 1999-US17165	19990729
HU 2001003126 A2	WO 1999-US17165	19990729
	HU 2001-3126	19990729
ZA 2001000512 A	ZA 2001-512	20010118
MX 2001000968 A1	MX 2001-968	20010126
JP 2002521043 W	WO 1999-US17165	19990729
	JP 2000-562047	19990729

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9952408	A	Based on	WO 200006193
BR 9912539	A	Based on	WO 200006193
EP 1100534	A1	Based on	WO 200006193
HU 2001003126	A2	Based on	WO 200006193
JP 2002521043	W	Based on	WO 200006193

PRIORITY APPLN. INFO: US 1998-113143P 19981218; US 1998-94720P  
19980730

AN 2000-182914 [16] WPIDS

CR 1999-493811 [41]; 2002-098005 [13]; 2002-681828 [73]

AB WO 200006193 A UPAB: 20021118

NOVELTY - A new method for producing equine mammals comprises artificially inseminating equine sperm cells (ESCs) into the uterine horn of a female equine mammal and producing an equine offspring.

DETAILED DESCRIPTION - A novel method (A) of practically producing an equine mammal comprises:

(1) determining an estimated time of estrus of a female species of an equine mammal, the female species having 2 uterine horns, each having a tip and a follicle, and having a vagina, a uterus, and a rectum;

(2) collecting ESCs from a male species of an equine mammal;

(3) establishing an equine insemination sample containing at least some of the ESCs from the male species of the equine mammal;

(4) establishing a flexible probe having a sperm container;

(5) placing the flexible probe in the vagina of the female equine mammal;

(6) manipulating the flexible probe into the uterus of the female equine mammal;

(7) guiding the flexible probe into a uterine horn of the female equine mammal;

(8) artificially inseminating the female species of the equine mammal; and

(9) fertilizing at least one equine egg within the female species of the equine mammal to produce an equine offspring

INDEPENDENT CLAIMS are also included for:

(1) a method of sorting ESCs according to a determination of their sex characteristic comprising:

(a) collecting ESCs from a male species of an equine mammal;

(b) staining the ESCs;

(c) establishing a cell source which supplies the ESCs to be sorted;